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A. D. MELVIN, D. V. S., Chief of Bureau.

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The Dairy Division of this Bureau has prepared the accompanying paper and plans, which contain suggestions for building a modern dairy barn. This work is issued in circular form so as to supply the demand that exists among dairy farmers generally for information along this line.

It has been the endeavor to plan a barn embodying the best ideas in scientific and sanitary construction that are consistent with practicability and cheapness, and it is believed the result will help the dairyman to get the best products from his cows in the most economical manner.

Respectfully,

A. D. MELVIN,
Chief of Bureau.

Approved:

JAMES WILSON,
Secretary of Agriculture.

SUGGESTIONS FOR CONSTRUCTION OF A MODERN DAIRY BARN.

FLOOR PLAN.

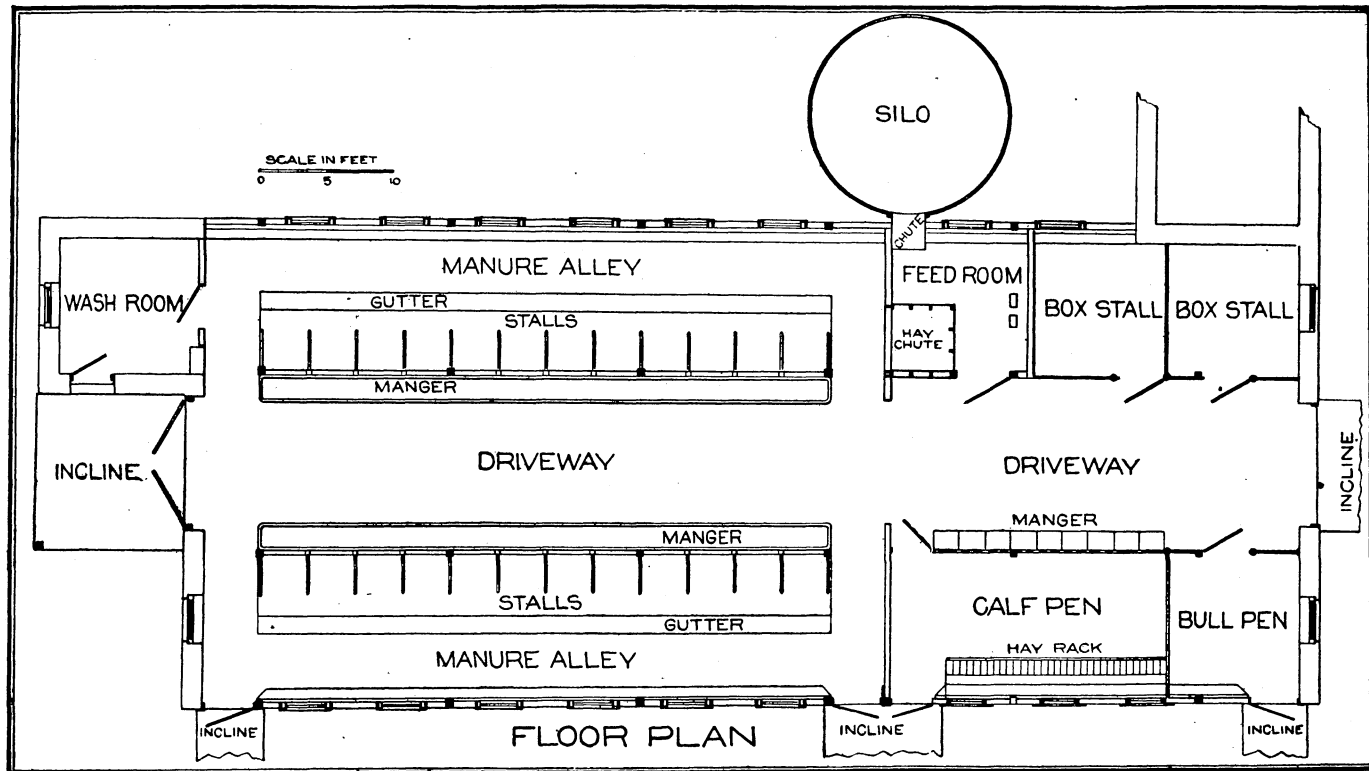
The plan on the next page is designed for 24 cows, and allows ample room for calf pen and box stalls for bull and cows; also space for feed room, hay chute, wash room, and silo.

In presenting this plan it is not intended to insist that the arrangement shown is the only satisfactory one, but the idea is to present some important features that are often overlooked by the builder and which are vital to a well-planned structure.

The amount of space allowed for the various purposes named on the plan is thought to meet the requirements so far as the square feet of floor space is concerned. The arrangement of the space can be adapted to the needs of the particular location.

SPECIAL FEATURES COMMON TO ALL WELL-PLANNED BARNES.

Size.—It will be noted that the width on the plan is 36 feet 4 inches outside. There are two main reasons for adopting this width, first, it allows ample room for the stalls and passageways, and, second, it permits of the most economical use of lumber in building.



FLOOR PLAN OF MODERN DAIRY BARN.

While the length here shown is 84 feet 9 inches, this feature is wholly dependent on the number of cows the dairyman wishes to handle. The side walls are built of stone or concrete up to the window sills, the balance of the walls being frame. The end walls are constructed of stone or concrete up to the ceiling. A partition extends across the barn, so that the cow stable can be entirely shut off from the other section. This is considered a strong point in this plan.

Posts and joists.—The posts carrying the upper floor are 6 by 6 inches, the girders 10 by 12, and joists 2 by 12. If yellow pine is used the joists may be spread 24 inches between centers, but if hemlock is used the distance should be reduced to 16 inches.

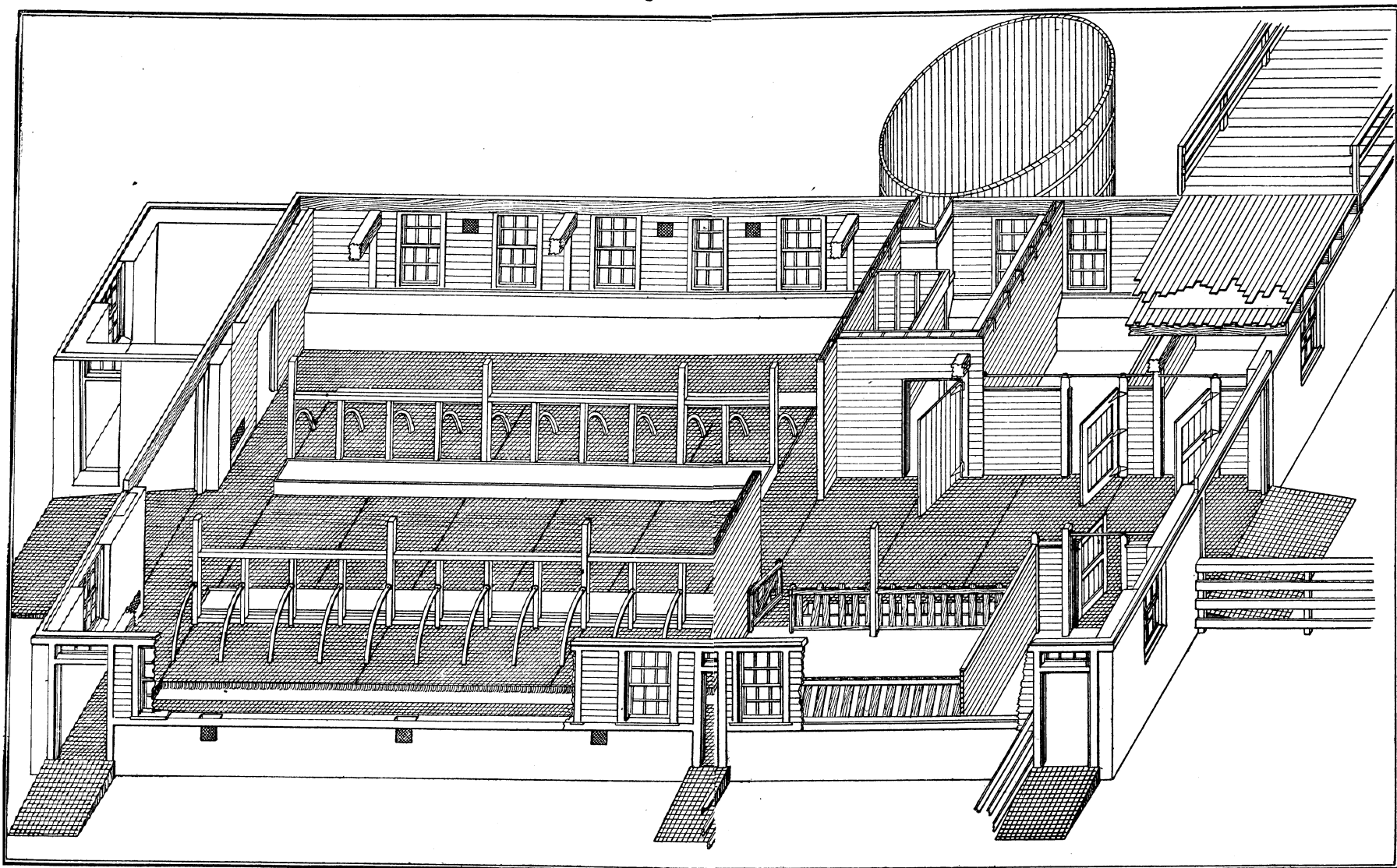
Windows.—One of the weakest points in barn construction is the small amount of window space usually allowed. The space in this plan provides approximately 6 square feet for each cow. It will be noted from the elevation that the windows are sliding sash, making them nearly twice as high as they are wide. This arrangement will admit much more light than the same space would if the windows did not extend to the ceiling. A common error is to make the windows too low.

Stalls.—The plan shows a width of stall of 3 feet 6 inches, which is as narrow as should be allowed. This width also fits into the construction better than any other. The depth is indicated as 4 feet 10 inches. This may be varied according to the size of the cows in the herd by increasing the depth of the stalls and decreasing the width of the alley behind, or vice versa. Manure gutter should not be less than 16 inches in width and not over 4 inches deep.

Manger.—The manger is planned to be 2 feet wide and 6 inches deep, with slightly rounding bottom, the bottom being 2 inches higher than the floor of the stalls.

Floor.—The entire floor is concrete 6 inches in depth when finished. We consider concrete the best material for a floor for several reasons: (1) It is the only material that is sanitary; (2) it is economical because of its durability; (3) when a reasonable amount of bedding is used it is comfortable to the animals and no bad effects result. The floor is intended to be raised about 1 foot above the level of the ground to insure drainage.

Alleys.—The alleys behind the cows are 4 feet wide; these give ample room for the passage of the manure truck. It is designed to take the manure not only out of the barn, but away from the barn and deposit it in a manure shed or on the field. It is undesirable from the standpoint of construction to have a manure pit under the stable, for the reason that a concrete floor can not successfully be put on wooden joists, and steel joists are expensive. It is also insanitary to have the manure cellar under the floor.



GENERAL VIEW OF BARN.

Calf pen.—This should be a feature in every well-planned dairy barn. The one shown is 21 by 11 feet, with manger on the front for feeding grain and hay rack along the back wall. Individual stanchions are provided for feeding calves grain and milk.

Bull pen and box stalls.—These are approximately 10 by 10 feet, which is considered ample size for this purpose. There is a full window in each stall providing an abundance of light.

Feed room.—This is centrally located; a chute from the silo enters into it, also two grain chutes from the upper floor. The feed room is large enough for storage of trucks necessary to carry grain and silage. A hay chute from the loft above deposits the hay in the feeding alley.

Wash room.—No dairy barn is complete without a wash room for the milkers and barn attendants, and lockers for their clothes. It should also contain a small boiler for providing hot water and steam, as this is a necessary part of the equipment of a modern barn. Milk scales, record sheets, milk stools, etc., may also be kept here.

Watering.—Watering devices may be put in at the option of the builder and are a necessary feature of a modern dairy barn.

Silo.—A silo is provided in the plan at a convenient location for feeding the silage. The silo planned for this barn is 16 feet in diameter and 28 feet high, and has a capacity of about 110 tons. This will provide silage for 24 animals for six to eight months.

GENERAL VIEW OF INTERIOR OF BARN.

The illustrations (pp. 4 and 5) shows the construction of walls, floors, and partitions, also location of doors and arrangement of stalls. The stalls are so designed that stanchions or chain ties may be used. Builders who desire to use patent stalls will find the arrangement of gutter, platform, and feed manger applicable to their use.

Storage of feed.—There is no objection to storage above the cow stable proper, so long as the floor is constructed similar to the one in the drawing; that is, a double floor with paper between, the upper part being made of matched lumber.

Ceiling.—In colder climates it is deemed better to have a comparatively low ceiling on account of temperature, and this construction admits of changes in this respect.

Ventilation.—The plan adapts itself to any system of ventilation. The openings shown give a suggestion as to where the fresh air may be taken in and the impure air discharged.

Driveway to second floor.—This is located on one side of the barn, at the end. The main reason for locating the driveway at this point is because it does not shut out any light from the floor below. Too often the driveway is placed in the center of the barn, where it covers a large area, which should be left free for windows.